

**CLASS SPECIFICATION**

<u>TITLE</u>	<u>GRADE</u>	<u>EEO-4</u>	<u>CODE</u>
ENGINEERING TECHNICIAN V	35	C	6.305
ENGINEERING TECHNICIAN IV	33	C	6.308
ENGINEERING TECHNICIAN III	30	C	6.313
ENGINEERING TECHNICIAN II	27	C	6.328
ENGINEERING TECHNICIAN I	23	C	6.334

BENCHMARK DESCRIPTIONS

The following benchmark descriptions are representative examples of how positions are classified at various levels in several user agencies, but they are not intended to be all-inclusive. Allocation of new or existing positions not described below must be determined by a review of the nature and complexity of work performed; the knowledge, skills and abilities required; independence/supervision received; scope of responsibility/consequence of error; authority to take action/decision-making; and personal contacts necessary to complete work.

DEPARTMENT OF TRANSPORTATION - District Office

Engineering Technician IV - Establish and maintain permit records and construction plans for the district; assist the general public, contractors, private businesses and utility companies with permit application; conduct initial and final review of permit applications and plans to ensure compliance with department standards and specifications and to establish special conditions for review by the D.O.T. review board; resolve technical problems and give final approval on all permit work and change orders. Oversee the design and construction phases of encroachment permits; oversee the construction phase of departmental, district, maintenance and stewardship projects and other encroachments; perform and review inspections of railroad grade crossings, railroad safety improvements, material pit reviews and other inspections.

DEPARTMENT OF TRANSPORTATION - Materials and Testing Division

Engineering Technician V - Supervise staff and oversee field operations on a statewide basis by determining work priorities and delegating project assignments; review sampling procedures to ensure compliance with department sampling, field logging and transportation policy; determine location of sample holes and obtain access to field sites; coordinate with district maintenance and construction offices for required staff and equipment; oversee core drilling operations and ensure proper location and setup of drilling rig, and the removal, logging, and transportation of coring samples; resolve field problems and provide direction to crew involving equipment, sampling procedures and access to material sites; delegate project assignments; provide training to staff on specialized equipment and issue certification.

Engineering Technician IV - Perform the statewide quality assurance program for the division; monitor the current status of certification and supporting documentation submitted by the contractor for each project; document and process reports to ensure proper sampling quantities on a contract and to record any failing materials; research specification requirements and reference standard plans to provide engineers and contractors with a formulary of material requirements to be met in order to accept a contract; prepare letters of acceptance; and notify the Federal Highway Administration that all materials were accepted and the job was completed within federal guidelines. Ensure that lab personnel and equipment are certified to meet the American Association of State Highway and Transportation Officials

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Materials and Testing Division - Engineering Technician IV, (cont'd)

(AASHTO) specifications by keeping active records on personnel and equipment with respect to origination dates, lab functions, longevity within the lab and tests performed.

Engineering Technician III - Perform material and soil testing in a laboratory setting involving a variety of design and quality control testing procedures including acceptance testing, design mix, proficiency and advance testing; conduct research on material properties, new or proposed specifications and test procedures; maintain and calibrate test equipment and maintain related records. Work is performed in a variety of settings, including:

Field Exploration - Function as a leadworker for assigned field crew in the sampling and inspection of aggregate sites, roadways, structures and culverts and proposed locations; direct the crew in surveying, heavy equipment operation, drilling rigs, sampling methods and recordkeeping; ensure proper handling, logging and transporting of material samples.

Concrete and Steel Lab - Perform complex testing related to concrete, cements, aggregates, and reinforcing steel including proficiency testing, tensile and elongation tests, compressive strength tests, and air permeability testing; act as a leadworker for lower level technicians by providing training and work direction and ensuring compliance with testing procedures.

Asphalt Lab - Perform complex testing for asphalt products utilized in the State's highway system including acceptance, quality control, proficiency and advanced testing; conduct research on material properties, new or proposed specifications, and test procedures.

Aggregates Lab - Perform a variety of complex testing such as abrasion, gravity, clay content, and particle size analysis involving source acceptance of roadbed and sub-grade material; conduct proficiency testing and research to determine the physical characteristics of soils, aggregates, additives and proposed test modifications; perform AASHTO Materials and Reference Laboratory testing; assist the supervisor in training and directing lower level technicians.

Bituminous Lab - Perform complex testing for all bituminous mixture products utilized in the State's highway system including bituminous mix designs, acceptance, quality control, proficiency and advanced testing; conduct research on material properties, new or proposed specifications and test procedures.

Pavement Analysis - Measure the functional capability of the roadway through rideability testing; determine the structural capacity of existing pavements using the falling weight deflectometer (FWD); determine the safeness of the roadway through friction testing; verify the condition and depth of existing PBS pavements, confirming repair strategies, and verifying the depth of new PCCP for payment through coring operations. Incumbents are assigned specific testing responsibilities (rideability) and have a working knowledge of the others (FWD, Friction, and Coring); collect and analyze data for the Pavement Management System and research; prepare reports from the data collected; research historical information on existing roadbeds by analyzing contract plans and maintenance work; function independently and use considerable judgment in complying with Federal Highway Administration (FHWA) and department guidelines, policies, and procedures.

"R" Values - Perform a variety of complex testing such as stabilization, absorption, specific gravity, and soluble salt involving source acceptance of roadbed and sub-grade material; conduct proficiency testing and research to determine the physical characteristics of soils, aggregates, and proposed test modifications; perform stabilization tests on soils with lime or cement additives; perform AASHTO Materials and Reference Laboratory testing; assist the supervisor in training and directing lower level technicians.

Lab Services - Receive, inspect, document, and initially certify materials, testing equipment and material samples for the Materials and Testing Division; log and track material samples, monitor results of testing and notify appropriate staff; maintain equipment inventory and order lab supplies; perform calibration of lab equipment and recordkeeping on a statewide basis; maintenance; ensure all lab equipment and supplies meet State and federal standards.

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Materials and Testing Division - Engineering Technician III, (cont'd)

Geotechnical Lab - Perform complex soil mechanics testing such as compression permeability, one-dimensional consolidation, triaxial compression and direct shear; record data, conduct complex technical engineering calculations and prepare reports; assist geological engineers in conducting a variety of field tests; enter data into the computer system and prepare charts, graphs and tables.

Las Vegas Branch Testing Lab - Perform material testing such as record sampling of construction projects in Southern Nevada, D-load testing and coring of concrete pipe during manufacturing, testing and logging of aggregate pits and conduct tensile and compression strength tests of concrete and reinforcing steel; operate a variety of test equipment such as core drills, auger drills, core measuring devices, R-meters, survey equipment and various laboratory equipment.

Engineering Technician II - Work is performed in a variety of settings, including:

Field Exploration - Conduct field sampling of material sites for road construction projects; transport and operate heavy equipment; survey site boundary and sampling locations and complete field logs, records and reports; perform sampling of material sites and transport material to testing lab; may assist on core drilling operations involving the setup, operation and maintenance of the drilling rig.

Aggregates Lab - Perform moderately complex testing; receive and log samples and prepare required forms for identification and recording purposes; conduct testing of soil and roadbed aggregate samples received to determine clay and moisture content and fractured face; perform sieve analysis to separate the components of the sample and check for gradation, cleanliness and sand equivalency and record results; maintain and calibrate equipment.

"R" Values - Perform moderately complex testing such as liquid stabilization, moisture density and soluble salt tests; receive and log samples and prepare required forms for identification and recording purposes; conduct testing of soils and roadbed aggregate and record results; maintain and calibrate equipment.

Roadbed Design - Prepare informational maps and profile sheets by plotting location and composition of samples taken from material pit sites using field data obtained to determine composition of soil, removal and availability of roadbed material for use by the design engineer and contractors; create material forms for use by the Equipment Division for inclusion in contract documents, special provisions and bond requirements; update and maintain material survey and site files, policy manuals, geological map books and pit file data; locate construction contracts, material survey files and plan documents for use by the roadbed design engineer.

DEPARTMENT OF TRANSPORTATION - Right- of -Way Division

Engineering Technician V

Engineering Section - Supervise the work of assigned squads of technicians by training staff, coordinating assignments and reviewing work; provide guidance and direction to staff and meet with division management and federal representatives regarding scope of work; review completed plans, maps, title packages and legal descriptions prepared by section staff; direct or conduct research of departmental records to provide information to the general public, surveyors, State and local agencies regarding the location of department lands; establish work performance standards, evaluate the performance of personnel and make recommendations in the hiring, firing and disciplinary actions of assigned employees.

Utility Inspection - Supervise a staff of Engineering Technicians performing construction inspection of utility and railroad relocation and reconstruction work required by conflicts with highway construction projects; oversee and direct field operations for utility and railroad construction inspections; direct the coordination of preliminary engineering activities and plan reviews involving

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Right- of -Way Division - Engineering Technician V (cont'd)

Utility Inspection (cont'd)

the identification and location of utility and railroad facilities in conflict with proposed highway construction; supervise compliance reviews on billboard and junkyard regulatory controls including permit issuance, inspection and issuance of violation notices; prepare work performance standards, employee performance evaluations and make recommendations on various personnel actions.

Engineering Technician IV

Engineering Section - Perform the more advanced technical engineering work utilizing real estate and surveying laws and principles. Operate CAD technology and computers to compute the boundary and area of each property affected by a proposed project; calculate land net, total property and other engineering calculations; perform land title searches and drafting work specific to preparation of right-of-way plans; sketch maps and special exhibits pertinent to properties being acquired or disposed of utilizing CAD technology or conventional drafting methods; prepare legal descriptions, conduct research and provide information to the general public, surveyors, State and local agencies regarding the location of department lands, encumbrances, easements, alignments and reference monuments. Assist in the orderly retention of the department's right-of-way engineering records; may serve as a leadworker for an assigned squad of technicians by providing training and directing work assignments; ensure policy and procedure are followed, equipment is used and maintained properly, and correct drafting methods are applied. Review calculations, title reports, completed legal descriptions and the final work product prepared by lower level engineering technicians for accuracy.

Utility Inspection - Perform more advanced technical engineering work in public utility and railroad relocation and facilities adjustment, including field monitoring and inspecting utility and railroad company reconstruction projects to ensure adherence with highway design and company engineering plans; oversee and document labor, equipment and materials used by the companies in performing required work for support of cost reimbursement; initiate and prepare change orders; ensure that safety regulations are enforced and that traffic control is in place in the work zone; perform surveillance, issue violation notices, and perform permitting and inspection duties required by billboard and junkyard control laws and regulations.

Condemnation - Prepare title packages and perform the more complex research for condemnation of real estate for highway construction purposes involving land title searches, drafting, research and project management; resolve discrepancies involving chain of title and provide assistance to the public, attorneys, county and city officials, property owners, department staff and State agencies.

Engineering Technician III

Engineering Section - Perform and compile abstract land title research; calculate land net, total property and right-of-way traverses; establish and/or adjust former centerline traverses utilizing CAD technology or computers; draft right-of-way plans and sketch maps, special exhibits and material site withdrawal maps utilizing CAD or conventional techniques. Conduct research of department records, identify discrepancies, and write legal descriptions pertinent to parcels of land for acquisition or disposal.

Utility Inspection - Perform construction inspections of relocated utility and railroad company facilities being adjusted to eliminate conflicts with highway construction; assist in determining highway/utility and railroad conflicts during preliminary engineering; assist in the preparation of change orders, prepare cost reimbursement documentation and monitor work zone for compliance with safety and traffic control requirements; perform surveillance, enforcement, inspection and permit issuance duties required for effective billboard and junkyard control.

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DEPARTMENT OF TRANSPORTATION - Design Division

Engineering Technician III - Assist in performing transportation related design work of a moderately complex nature involving the calculation of contract plan quantities for earthwork, base and surface, striping, guardrail, traffic control, and other items; utilize the CAD system to prepare scaled drawings of title and location sketches, typical sections, base and surface summaries, plan and profile sheets, special details, striping details, traffic control plans, and structure lists; conduct research regarding project history, as-built plans, construction plans, survey and previous fieldwork; gather or assist in gathering information on existing features such as measurements of slopes, guardrail, drainage features, sidewalk, curb and gutter, and utilities; utilize computer to assist in the creation, updating and maintenance of engineer's estimates and preliminary and final agreement estimates.

DEPARTMENT OF TRANSPORTATION - Construction Division

Engineering Technician IV

Inspection - Perform the more complex inspection work involving major structures such as bridges, culverts, head walls, retaining walls, barrier rail, reinforcing steel and pile driving operations; act as a leadworker for assigned technicians by training, providing direction, resolving field problems and interpreting construction plans and specifications; perform inspections of roadway construction projects; conduct survey work, material testing, construction office duties and documentation.

District - Operate and oversee a district field progress lab; oversee district construction acceptance testing ensuring procedures, test results and equipment used by district materials and testing labs and contractors meet federal and State requirements; audit test results, perform a variety of materials testing and maintain records of test results and audits; certify contractor's and D.O.T. labs and provide training regarding testing procedures, required specifications and equipment maintenance; maintain equipment inventory control. Initiate repairs on failed equipment and conduct physical inventory checks of lab equipment; maintain source acceptance samples of material sites in the district and send to headquarters for testing.

Engineering Technician III - Perform inspection of highway construction and maintenance projects by ensuring materials, equipment and completed work comply with construction plans and standard specifications; conduct tests on material used in concrete and bituminous mixtures, base and subgrade; perform survey work for roadway line and grade control and determine material quantities used; work in the district construction office preparing contractors' pay estimates, compiling project field books, checking testing reports, finalizing contract records, preparing necessary personnel documents, reviewing change orders, and monitoring contract for compliance with federal labor laws.

DEPARTMENT OF TRANSPORTATION - Location Division

Engineering Technician III - Perform journey level technical survey work; operate a variety of complex computerized survey equipment, levels, transits, distance meters and total stations to determine elevation of points and establish ground control; calculate bearings and distances by taking field notes and perform more complex technical engineering calculations; may act as a leadworker or crew chief in the absence of the supervisor by providing direction and training to assigned crew.

Engineering Technician II - Perform work in support of technical and professional survey functions including the setup of various survey equipment and location of site boundaries and survey monuments; measure distances using tapes and wire levels; stake corners and marking stations to establish ground control for aerial survey projects, boundary and right-of-way surveys, conventional location surveys and

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DEPARTMENT OF TRANSPORTATION - Location Division (cont'd)

Engineering Technician II (cont'd)

cross sections; set vertical and horizontal control points and take vertical and horizontal measurements; maintain survey equipment.

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES - Division of Water Resources

Engineering Technician V - Supervise the water rights assignment staff by directing and coordinating a statewide program including water rights ownership database management; reviewing work in progress and approving final work products; training section staff; responding to requests from the general public and State and federal agencies regarding water rights ownership, appropriation and department policy, rules and regulations.

Engineering Technician IV

North - Perform the more complex and difficult water rights transfers, determination of ownership, calculation of acre feet and property location involving research of court decrees, existing deed transfers and existing permit records to establish chain of title, resolve discrepancies and verify quantities and distribution of water rights; research and interpret historical Truckee River Water Rights data such as legal descriptions and land survey documents for accuracy and to make determinations on water rights ownership.

South - Ensure proper application and licensing is obtained by private contractors prior to well drilling in Las Vegas; provide information to the public regarding State regulations for drilling and plugging wells and the beneficial or illegal use of water; research historical records involving well permits; recommend disciplinary action against violators and attend public hearings; provide training and direction to assigned staff and assist in taking well measurements and installing and maintaining various gauges and recording devices to establish historical data regarding hydrologic conditions of area basins.

Engineering Technician III

State - Maintain the records of the State Engineer to reflect current ownership of water rights by verification and abstraction of all documents supporting the chain of title; conduct research to establish chain of title, resolve discrepancies and verify quantities and distribution of water rights; summarize data collected to support final determination; provide information to property owners, developers, engineers, and municipalities; conduct technical and statutory review of water rights applications for publication.

Elko - In the Elko District Office, inspect water right activity, well construction and well location; verify quantities and distribution of water rights; monitor, inspect and maintain South Fork Dam; recharge and record precipitation in gauges.

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES - Division of State Lands

Engineering Technician IV - Research legal descriptions for the acquisition of lands and interests in lands and maintain records and files of State owned land; write legal descriptions and prepare parcel maps; originate land assignment to State agencies and ensure Public Works Board projects are built on State land by reviewing architectural and construction drawings and land office records; provide information to the general public, surveyors, and State and local agencies regarding the location of State land encumbrances and easements; maintain and manage the State's historical land records.

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DEPARTMENT OF WILDLIFE

Engineering Technician IV - Evaluate proposed construction projects; assist in compiling and preparing consulting contracts, specifications and estimates; maintain and update records, drawings and files of new and existing department properties and structures; assist the conservation engineer with land and water rights surveys by plotting field information and prepare final maps and site drawings; track and maintain work progress schedules for ongoing construction projects and contracts.

	<u>6.305</u>	<u>6.308</u>	<u>6.313</u>	<u>6.328</u>	<u>6.334</u>
ESTABLISHED:	8/23/71	8/23/71	7/1/65	7/1/65	7/1/65
REVISED:					10/5/70
REVISED:			8/23/71	8/23/71	8/23/71
REVISED:				5/12/72	5/12/72
REVISED:	12/12/73				
REVISED:			4/26/74		
REVISED:			6/26/74		
REVISED:	7/1/74	7/1/74	7/1/74	7/1/74	
REVISED:		10/25/74	10/25/74	10/25/74	
REVISED:		4/4/75			
REVISED:				7/1/75	
REVISED:				2/26/76	
REVISED:	7/27/78-3				
REVISED:			9/11/78-3		
REVISED:		1/17/86	1/17/86		
REVISED:			4/14/87	4/14/87	
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REVISED:		12/9/88-3			
REVISED:		2/21/89-12			
REVISED:	7/1/93P	7/1/93P	7/1/93P	7/1/93P	7/1/93P
	8/31/92PC	8/31/92PC	8/31/92PC	8/31/92PC	8/31/92PC
REVISED:	1/13/95UC	1/13/95UC	1/13/95UC	1/13/95UC	1/13/95UC
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REVISED:	7/27/00UC	7/27/00UC	7/27/00UC	7/27/00UC	7/27/00UC
REVISED:	6/25/04PC	6/25/04PC	6/25/04PC	6/25/04PC	6/25/04PC